

Quiz 2

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. pg.13#21 (4 marks) Divide by long division:

$$(x^3 - 4 + 3x^3) \div (4 + x)$$

$$\begin{array}{r} 3x^2 - 12x + 49 \\ x+4 \overline{) 3x^3 + 0x^2 + x - 4} \\ \underline{-(3x^3 + 12x^2)} \\ -12x^2 + x \\ \underline{-(-12x^2 - 48x)} \\ 49x - 4 \\ \underline{-(49x + 196)} \\ -200 \end{array}$$

$$\frac{3x^3 + x - 4}{x+4} = 3x^2 - 12x + 49 - \frac{200}{x+4}$$

Question 2. pg.19#8d (2 marks) Factor completely:

$$15x^4 - 25x^3 + 10x^2$$

$$\begin{aligned} &= 5x^2(3x^2 - 5x + 2) \\ &= 5x^2(3x^2 - 2x - 3x + 2) \\ &= 5x^2(x(3x-2) - 1(3x-2)) \\ &= 5x^2(x-1)(3x-2) \end{aligned}$$

$$\begin{aligned} 3x^2(2) &= 6x^2 = ab \\ \text{s.t. } a+b &= -5x \\ -2x-3x &= -5x \end{aligned}$$

Question 3. pg.27#71 (4 marks) Simplify:

$$\begin{aligned} &\frac{x^2-11}{x^2+7x+6} - \frac{x}{x+6} + \frac{2}{x+1} \\ &= \frac{x^2-11}{(x+1)(x+6)} - \frac{x}{x+6} + \frac{2}{x+1} \\ &= \frac{x^2-11}{(x+1)(x+6)} - \frac{x(x+1)}{(x+1)(x+6)} + \frac{2(x+6)}{(x+1)(x+6)} \\ &= \frac{x^2-11-x^2-x+2x+12}{(x+1)(x+6)} \\ &= \frac{x+1}{(x+1)(x+6)} \\ &= \frac{1}{x+6} \end{aligned}$$